

REMARKS

By the present amendment, claims 1 and 2 are under consideration in the application.

Claims 3-5 have been withdrawn from consideration due to a restriction requirement.

Support For Claim Amendments

A grain-oriented electrical steel sheet is disclosed in the specification, e.g., at page 7, line 34.

The upper limit of 60 μm or more for the viscoelastic layer is disclosed in the specification, e.g., at page 7, lines 7-8.

Suppressing plane vibration of the steel sheet is disclosed in the specification, e.g., at page 5, lines 4-5. Magnetostriiction is disclosed in the specification, e.g., at page 4, lines 35-36.

New matter is not being presented by the present amendment.

§102

Claims 1 and 2 were rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,063,098 to Niwa et al.

This rejection, as applied to the amended claims, is respectfully traversed.

Patentability

The present invention solves the problem that when a magnetic field which changes with the passage of time is imposed on a grain-oriented electrical steel sheet

incorporated into a transformer core, the expansion and contraction generated therein are changed into a vibration perpendicular to the surfaces of the steel sheet. The present invention provides a grain-oriented electrical steel sheet for a low-noise transformer having a viscoelastic layer of 30 μm or more to 60 μm or less in thickness for suppressing plane vibration caused by magnetostriiction disposed on at least one surface of the grain-oriented electrical steel sheet.

On the other hand, U.S. Patent No. 5,063,098 to Niwa et al., discloses a vibration damping material used in construction parts, machine parts, etc., for suppressing vibration applied from the outside. This vibration damping material wherein a metal sheet having a rubber-or synthetic resin-base viscoelastic polymeric layer or layers formed on one or both sides is combined with a metal sheet including no polymeric layer to provide materials, and the materials are arranged in opposition to each other through the viscoelastic polymeric layer(s) and laminated together with a hot-melt-adhesive resin film having a high melting point.

The present invention suppresses noise of a transformer core caused by expansion and contraction generated by an alternating magnetic field which are changed into a vibration perpendicular to the steel surfaces of the steel sheet. On the other hand, Niwa et al. suppress a vibration applied from outside. A mechanism for suppressing

noise according to the present invention is quite different from the vibration disclosed in Niwa et al.

Further, Niwa et al. does not disclose or suggest to suppress noise of a transformer having a viscoelastic layer of 30 μm or more to 60 μm or less in thickness for suppressing plane vibration caused by magnetostriction disposed on at least one surface of the grain-oriented electrical steel sheet. Therefore, the present invention is quite different from the technology disclosed in Niwa et al.

It is therefore submitted that amended independent claims 1 and 2 are patentable over U.S. Patent No. 5,063,098 to Niwa et al.

Rejoinder

If amended independent claim 1 is found allowable, it is respectfully requested that claims 3 and 5, dependent on claim 1, be rejoined to the application.

It is also respectfully requested that rejoinder or independent claim 4 be considered.

CONCLUSION

It is submitted that in view of the present amendment and foregoing remarks, the application is now in condition for allowance. It is therefore respectfully requested that the application, as amended, be allowed and passed to issue.

Respectfully submitted,

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